

IN THE CLAIMS:

Please amend the claims as follows. The claims are in the format as required by 35 C.F.R. § 1.121.

Claims 1-3 (Canceled)

4. (Currently Amended) The method of claim 1 A method for transporting a plurality of client data signals via a single server signal comprising:

receiving a plurality of input client data signals;

generating timing data for each of the plurality of input client data signals and
constructing the corresponding output client data signals,

wherein generating the client timing data for each of the plurality of input client data signals comprises, for each input client data signal, counting the bits of the input client data signal and determining the number of bits of the input client data signal which are counted in a predetermined interval,
and

wherein constructing the corresponding output client data signals comprises, for each output client data signal, counting the bits of the output client data signal, determining the number of bits of the output client data signal which are counted in the predetermined interval and adjusting a data rate of the output client data signal to cause the number of bits of the output client data signal which are counted in the predetermined interval to match the number of bits of the input client data signal which are counted in the predetermined interval;

mapping client payload data from the plurality of input client data signals to a payload of
a server signal;

mapping client overhead data from the plurality of input client data signals to a first
portion of unused overhead data in the server signal;

mapping client timing data to a second portion of unused overhead data in the server
signal;

transporting the server signal;

extracting the client payload data, client overhead data and client timing data from the server signal; and
constructing a plurality of output client data signals from the client payload data, client overhead data and client timing data.

Claims 5-8 (Canceled)

9. (Currently Amended) ~~The method of claim 1~~ A method for transporting a plurality of client data signals via a single server signal comprising:
receiving a plurality of input client data signals;
generating timing data for each of the plurality of input client data signals and
constructing the corresponding output client data signals, wherein generating the client timing data for each of the plurality of input client data signals comprises,
for each input client data signal, counting the bits of the input client data signal and determining the number of bits which are counted in a predetermined interval;
mapping client payload data from the plurality of input client data signals to a payload of a server signal;
mapping client overhead data from the plurality of input client data signals to a first portion of unused overhead data in the server signal;
mapping client timing data to a second portion of unused overhead data in the server signal;
transporting the server signal;
extracting the client payload data, client overhead data and client timing data from the server signal; and
constructing a plurality of output client data signals from the client payload data, client overhead data and client timing data.

Claims 10-18 (Canceled)

19. (Currently Amended) ~~The system of claim 12~~ A system for transporting a plurality of low-bit-rate data signals over a high-bit-rate data line comprising:

a multiplexer configured to:

receive a plurality of low-bit-rate input data signals,

map a payload of each low-bit-rate input data signal to a payload of a high-bit-
rate data signal,

map overhead data of each low-bit-rate input data signal to unused overhead of
the high-bit-rate data signal, and

map timing data for each low-bit-rate input data signal to the unused overhead of
the high-bit-rate data signal, wherein the timing data is generated at the
multiplexer based on the bit rates of the low-bit-rate data signals,

wherein the multiplexer comprises one or more ingress modules configured to
generate the timing data for each low-bit-rate input data signal;

a transmission medium coupled to the multiplexer and configured to transport the high-
bit-rate data signal; and

a demultiplexer coupled to the transmission medium and configured to generate a
plurality of low-bit-rate output data signals from the high-bit-rate data signal.

20. (Original) The system of claim 19 wherein each of the ingress modules comprises
an ingress buffer configured to store the first data stream,
an ingress counter configured to count the bits of the first data stream which are stored
in the ingress buffer,
an ingress timer, and
write logic coupled to the ingress counter and the ingress timer and configured to
determine the data rate of the first data stream, wherein the write logic is further
configured to periodically write the data rate of the first data stream into the
ingress buffer.

21. (Original) The system of claim 20 wherein each of the ingress modules further
comprises a converter configured to convert a received optical signal into an electrical signal.

22. (Original) The system of claim 19 wherein each of the ingress modules is configured to
generate the timing data by counting a number of received bits in a predetermined interval.

Claim 23. (Canceled)

24. (Currently Amended) The system of claim 12 A system for transporting a plurality of low-bit-rate data signals over a high-bit-rate data line comprising:

a multiplexer configured to:

receive a plurality of low-bit-rate input data signals,

map a payload of each low-bit-rate input data signal to a payload of a high-bit-rate data signal,

map overhead data of each low-bit-rate input data signal to unused overhead of the high-bit-rate data signal, and

map timing data for each low-bit-rate input data signal to the unused overhead of the high-bit-rate data signal, wherein the timing data is generated at the multiplexer based on the bit rates of the low-bit-rate data signals;

a transmission medium coupled to the multiplexer and configured to transport the high-bit-rate data signal; and

a demultiplexer coupled to the transmission medium and configured to generate a plurality of low-bit-rate output data signals from the high-bit-rate data signal, wherein the demultiplexer is configured to generate the plurality of low-bit-rate output data signals by generating at least one of the low-bit-rate output data signals corresponding to one of the low-bit-rate input data signals such that a payload of the at least one of the low-bit-rate output data signals is the same as a payload of the corresponding one of the low-bit-rate input data signals, and overhead data of the at least one of the low-bit-rate output data signals is different from overhead data of the corresponding one of the low-bit-rate input data signals.

25. (Currently Amended) The system of claim 12 A system for transporting a plurality of low-bit-rate data signals over a high-bit-rate data line comprising:

a multiplexer configured to:

receive a plurality of low-bit-rate input data signals,

map a payload of each low-bit-rate input data signal to a payload of a high-bit-rate data signal,

map overhead data of each low-bit-rate input data signal to unused overhead of the high-bit-rate data signal, and
map timing data for each low-bit-rate input data signal to the unused overhead of the high-bit-rate data signal, wherein the timing data is generated at the multiplexer based on the bit rates of the low-bit-rate data signals;
a transmission medium coupled to the multiplexer and configured to transport the high-bit-rate data signal; and
a demultiplexer coupled to the transmission medium and configured to generate a plurality of low-bit-rate output data signals from the high-bit-rate data signal, wherein the demultiplexer is configured to:
generate a first low-bit-rate output data signal by reconstructing the bit sequence and timing of a corresponding one of the low-bit-rate input data signals in the first low-bit-rate output data signal, and to
generate a second low-bit-rate output data signal having an identical payload and different overhead data from a corresponding low-bit-rate input data signal.

Claims 26 -33 (Canceled)